

### ***Listing of the Claims***

This listing of claims will replace all prior versions, and listings of claims in the application.

1-63. (Canceled)

64. (Currently amended) An apparatus, comprising:

a carousel comprising a base;

a plurality of liquid conduits formed within the carousel;

a plurality of movable stations positioned above the carousel, wherein the movable stations perform one or more physical steps;

a plurality of reaction mounts removably insertable onto the plurality of liquid conduits, wherein each liquid conduit forms a chamber below a corresponding reaction mount;

wherein at least one of the plurality of reaction mounts includes a plurality of wells formed therein, the plurality of wells; being configured to simultaneously communicate with the chamber formed by the liquid conduit;

wherein at least one of the plurality of reaction mounts is adapted to receive at least one of a plurality of reagents; and

wherein the plurality of wells are arranged in one or more rows; ~~and wherein at least one of the one or more rows contains sixteen wells.~~

65. (Previously presented) The apparatus of claim 64, wherein at least one of the plurality of wells contains nucleic acid.

66. (Previously presented) The apparatus of claim 65, wherein the nucleic acid in at least one of the plurality of wells are 40 to 50 nucleotides in length.

67. (Previously presented) The apparatus of claim 65, wherein the nucleic acid is attached to a solid support.

68. (Previously presented) The apparatus of claim 67, wherein the solid support comprises glass.

69. (Previously presented) The apparatus of claim 67, wherein the solid support comprises an inert polymer.

70. (Previously presented) The apparatus of claim 64, further comprising: a plurality of exit ports protruding from the base of the carousel, wherein each exit port enables drainage from a corresponding liquid conduit.

71. (Previously presented) The apparatus of claim 64, further comprising: at least one engagement port positioned under the carousel, wherein the at least one engagement port is raised or lowered to engage or disengage with at least one of the plurality of exit ports, wherein the at least one engagement port is connected to a vacuum line adapted to drain liquid from the engaged exit port.

72. (Previously presented) The apparatus of claim 64, wherein the one or more physical steps performed by the movable stations are selected from the group consisting of fluid delivery, fluid drainage, temperature control, and optical analysis.

73. (Previously presented) The apparatus of claim 72, wherein the at least one of the plurality of movable stations is a dispensing module adapted to deliver at least one of the plurality of reagents to at least one of the plurality of reaction mounts.

74. (Currently amended) The apparatus of claim 64, wherein at least one of the plurality of wells contains one or more ~~of the following~~ reagents selected from the group consisting of: (a) acetonitrile, (b) trifluoroacetic acid, (c) piperidine, and (d) dimethylformamide.

75. (New) The apparatus of claim 64, wherein at least one of the one or more rows contains sixteen wells.

76. (New) An apparatus, comprising:  
a carousel comprising a base;  
a plurality of liquid conduits formed within the carousel;  
a plurality of movable stations positioned above the carousel, wherein the movable stations perform one or more physical steps;  
a plurality of reaction mounts removably insertable onto the plurality of liquid conduits, wherein each liquid conduit forms a chamber below a corresponding reaction mount, the chamber being sealed on the bottom of the reaction mount;  
wherein at least one of the plurality of reaction mounts includes a plurality of wells formed therein, the plurality of wells being configured to simultaneously communicate with the chamber formed by the liquid conduit;  
wherein at least one of the plurality of reaction mounts is adapted to receive at least one of a plurality of reagents; and  
wherein the plurality of wells are arranged in one or more rows.

77. (New) The apparatus of claim 76, wherein at least one of the plurality of wells contains nucleic acid.

78. (New) The apparatus of claim 77, wherein the nucleic acid in at least one of the plurality of wells are 40 to 50 nucleotides in length.

79. (New) The apparatus of claim 77, wherein the nucleic acid is attached to a solid support.

80. (New) The apparatus of claim 79, wherein the solid support comprises glass.

81. (New) The apparatus of claim 80, wherein the solid support comprises an inert polymer.

82. (New) The apparatus of claim 76, further comprising a plurality of exit ports protruding from the base of the carousel, wherein each exit port enables drainage from a corresponding liquid conduit.

83. (New) The apparatus of claim 76, further comprising at least one engagement port positioned under the carousel, wherein the at least one engagement port is raised or lowered to engage or disengage with at least one of the plurality of exit ports, wherein the at least one engagement port is connected to a vacuum line adapted to drain liquid from the engaged exit port.

84. (New) The apparatus of claim 76, wherein the one or more physical steps performed by the movable stations are selected from the group consisting of fluid delivery, fluid drainage, temperature control, and optical analysis.

85. (New) The apparatus of claim 76, wherein the at least one of the plurality of movable stations is a dispensing module adapted to deliver at least one of the plurality of reagents to at least one of the plurality of reaction mounts.

86. (New) The apparatus of claim 76, wherein at least one of the plurality of wells contains one or more reagents selected from the group consisting of acetonitrile, trifluoroacetic acid, piperidine, and dimethylformamide.

87. (New) An apparatus for performing a series of physical steps in a chemical protocol, comprising:

a rotatable carousel comprising a base and a plurality of liquid conduits formed within the carousel;

a plurality of stations arranged in series from an initial station that performs an initial physical step in a series of physical steps in the chemical protocol to a final station that performs a final physical step in the series of physical steps in the chemical protocol; and,

a plurality of reaction mounts, each comprising a plurality of wells, and each being arranged on the rotatable carousel such that each may be moved sequentially from the initial station to the final station and so that after one complete rotation of the carousel the entire series of physical steps has been performed on the wells.

88. (New) The apparatus of claim 87, wherein at least one of the movable stations contains a nucleotide monomer.

89. (New) The apparatus of claim 87, wherein after the entire series of physical steps has been performed, at least one of the plurality of wells contains an oligonucleotide of approximately 40 to 50 nucleotides.

90. (New) The apparatus of claim 89, wherein the nucleic acid is attached to a solid support

91. (New) The apparatus of claim 90, wherein the solid support comprises glass.

92. (New) The apparatus of claim 90, wherein the solid support comprises an inert polymer.

93. (New) The apparatus of claim 87, further comprising a plurality of exit ports protruding from the base of the carousel, wherein each exit port enables drainage from a corresponding liquid conduit.

94. (New) The apparatus of claim 87, further comprising at least one engagement port positioned under the carousel, wherein the at least one engagement port is raised or lowered to engage or disengage with at least one of the plurality of exit ports, wherein the at least one engagement port is connected to a vacuum line adapted to drain liquid from the engaged exit port.

95. (New) The apparatus of claim 87 wherein the one or more physical steps performed by the movable stations are selected from the group consisting of fluid delivery, fluid drainage, temperature control, and optical analysis.

96. (New) The apparatus of claim 87 wherein the at least one of the plurality of movable stations is a dispensing module adapted to deliver at least one of the plurality of reagents to at least one of the plurality of reaction mounts.

97. (New) The apparatus of claim 87 wherein at least one of the plurality of wells contains one or more reagents selected from the group consisting of acetonitrile, trifluoroacetic acid, piperidine, and dimethylformamide.

98. (New) The apparatus of claim 87 wherein the reaction mounts are isolated in a containment chamber.

99. (New) The apparatus of claim 98 wherein the containment chamber contains a non-reactive gas.

100. (New) The apparatus of claim 99 wherein the non-reactive gas is nitrogen or argon.